Serolis bromleyana.—That portion of the chitinous integument that covers the eye is modified and differs from the rest by its comparative thinness, and by the absence of the characteristic scale-like sculpturing; corresponding to each element of the eye is a thickening of the cornea, which is, however, very slightly developed in comparison with other species, and indeed the two surfaces of the cornea appear in transverse section to form two nearly straight parallel lines, the lower surface alone showing a series of undulations of unequal extent. Pl. X. fig. 5, and Pl. IX. fig. 2, represent transverse sections through the cornea of *Serolis bromleyana* and *Serolis schythei* respectively; the conspicuous corneal lenses of the latter type are in very marked contrast to the feeble indications of these structures in *Serolis bromleyana*.

The tissues of the eye itself have evidently undergone considerable degeneration, and this, coupled with the fact that the specimens were by no means well preserved, renders any satisfactory comparison of their structure with that of the shallow-water species of *Serolis* and the Arthropoda generally extremely difficult. I describe the facts as they appear to me.

Pl. X. fig. 5 is a diagrammatic representation of a transverse section through the eye; beneath the cornea are a series of more or less cup-shaped masses of unequal size and of a granular appearance; occasionally several of these bodies appeared to have become fused together at their upper extremity, and in a few instances a short upward prolongation of the subjacent tissue into the substance of the body gave it the appearance of being originally formed out of two separate halves; the granular yellowish coloured matter of which these structures consist is almost entirely unaffected by carmine, which stains deeply the surrounding tissues, and is only slightly stained by hæmatoxylin. In teased preparations of the eye these structures are easily separated, and are seen to have an oval contour; from their position they would appear to correspond to the vitreous body, and in their general characters recall the vitreous bodies of the type of eye termed by Grenacher "pseudoconous." The compound eyes of the Arthropoda have been arranged by Grenacher[1] into three groups—(1) euconous eyes, (2) aconous eyes, and (3) pseudoconous eyes. In the first group the cells lying behind the facets secrete in addition to it a highly refractive vitreous body or "Kristallkegel," which is composed of as many segments as there are cells; in the second group the cells remain unaltered and secrete no vitreous body; in the third group these cells secrete "a soft fluid or semifluid substance" which represents functionally the vitreous body of euconous eyes. It seems to me very possible that the granular appearance of the vitreous body in the deep-sea *Serolis* has been caused by the coagulation (by alcohol) of a semifluid substance. Pseudoconous eyes, which according to Grenacher are only to be found in the order Diptera, are further distinguished from euconous eyes by the fact that the nuclei of the cells of the vitreous body (the so-called "nuclei of Semper") remain *below* the

[1] Sehorgan der Arthropoden, Göttingen, 1879.